

A CONTAINMENT CART

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10 68154, pray that Letters Patent may be granted to them for the invention set forth in the
following specification.

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

15 The present invention relates to containment units used to provide above-
ceiling construction and repair while limiting the exposure of the surrounding
environment to falling debris and potentially harmful materials released as a result of
the construction or repair work. More specifically, the present invention relates to a
containment cart that can be easily assembled, used and later disassembled and
20 transported by a single person.

2. DESCRIPTION OF THE PRIOR ART

1 From time to time, construction and repair work in above-ceiling areas becomes
necessary in nearly any home or building. It is easy to understand the mess that can
be generated when performing such construction and repair work. Where a drop-
5 ceiling is not provided, ceiling material may need to be cut and removed in pieces,
which causes dust and debris to fall and become airborne. Frequently, the area above
the ceiling will contain insulation or other materials. These materials may be harmful to
the health of those near the area, let alone the surrounding spaces and property.

10 Several different types of containment units have been designed to limit the
exposure of people and the surrounding environment to falling and airborne debris
occurring during above-ceiling construction or repair work. One example of such a
containment unit is described by Healey in U.S. Patent No. 4,682,448. The Healey
patent teaches an enclosure that can be positioned beneath the construction area,
15 extending from the floor to the ceiling to provide an enclosure in which the worker
operates. The containment unit is generally comprised of a rigid frame assembly and
an enclosure that is constructed of a flexible material. While the Healey containment
unit provides assistance in containing the debris, it suffers from a number of
shortcomings. First, the structure of the frame assembly is not provided in such a
20 manner that it can be easily disassembled into a plurality of smaller component parts
for ease of storage or transport. Second, the frame assembly is designed in such a
manner that it is difficult for a single user to adjust and operate. Other prior art designs,
such as U.S. Patent No. 5,558,112 and U.S. Patent No. 6,383,242, suffer from these

1 same shortcomings. However, the designs of these and similar prior art containment
units are more complex and intricate than the containment unit disclosed by Healey.
Accordingly, such containment units have become relatively complex and expensive to
manufacture, rendering them impractical for many operations.

5 Accordingly, what is needed is a containment unit, which provides an enclosure
for receiving falling and airborne debris caused by work being performed above a
ceiling, that is simple in design for ease of construction and use.

SUMMARY OF THE INVENTION

10 The containment cart of the present invention is generally provided with a frame
assembly and a cover. The frame assembly is constructed with a bottom wall sufficient
for supporting a worker. An upper open frame member is coupled to the bottom wall by
a pair of opposing support members that are positioned proximal a long or short axis of
the bottom wall. In one embodiment, the support members are selectively length-
15 adjustable to allow a user to vary the height of the containment cart. Gripping members
may be provided to permit a single user to adjust the height of the containment cart at
any point during its use. Another embodiment provides the unit with a portable dust
collection unit that it is releaseably coupled to the cover. In still another preferred
embodiment, each of the component parts of the system can be easily disassembled
20 for storage or transport. Casters coupled to the bottom wall provide the containment
cart with ease of mobility and positioning.

1 It is therefore one of the principle objects of the present invention to provide a
containment cart that can be height-adjusted by a single user while the containment
cart is in use.

5 A further object of the present invention is to provide a containment cart that can
be easily disassembled for storage and transport.

Still another object of the present invention is to provide a containment cart that
is relatively simple and inexpensive to manufacture.

10 Yet another object of the present invention is to provide a containment cart
having a frame assembly that uses only a single pair of support members without
sacrificing strength or stability.

These and other objects of the present invention will be apparent to those skilled
in the art.

BRIEF DESCRIPTION OF THE DRAWINGS

15 Figure 1 is a perspective view of one embodiment of the containment cart of the
present invention, depicting one contemplated use of the same;

Figure 2 is an isometric view of one embodiment of the frame assembly of the
containment cart of the present invention;

20 Figure 3 depicts the containment cart of Figure 1 as the same could be
disassembled for storage or transport; and

Figure 4 is a partial side elevation view of one embodiment of a length-adjustable
support member of the containment cart of the present invention;

DESCRIPTION OF THE PREFERRED EMBODIMENT

1 The containment cart 10 of the present invention is generally depicted in Figures
2 1-4. While the containment cart 10 will be described herein as being used for the
3 containment and collection of debris resulting from construction or repair work in and
4 above a ceiling in a home or office, it will be understood by those of skill in the art that
5 the containment cart 10 could be used in a wide array of applications and industries.
6 Accordingly, the following description should not be construed as limiting the available
7 uses for the containment cart 10 or the number of different embodiments of the
8 containment cart 10 that could be derived through the combination of the following
9 described preferred elements.
10 described preferred elements.

11 The containment cart 10 is generally comprised of a frame assembly 12 and an
12 enclosure means 14. The frame assembly 12 is provided with a bottom wall 16, which
13 may be formed as a single unit or constructed of a bottom frame member 18 and a
14 bottom platform 20. An upper frame member 22 is supported above the bottom wall 16
15 by a first elongated support 24, having opposite first and second end portions 26 and
16 28, and a second elongated support member 30, having opposite first and second end
17 portions 32 and 34. Due to the fact that only two elongated support members are
18 provided in the design of the frame assembly 12, it is preferred that the first and second
19 elongated frame members 24 and 30 engage the bottom wall 16 at coupling points that
20 share a common axis, which extends through the bottom wall 16 adjacent a long axis
21 "A", as depicted in Figure 2. However, the first and second elongated support members
22 24 and 30 could also be positioned so that the common axis extends through the
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1 bottom wall 16 adjacent a short axis "B" of the bottom wall 16. In either arrangement,
the elongated support members 24 and 30 provide stable support to the upper frame
member 22. It is contemplated that the elongated support members 24 and 30 do not
need to extend outwardly from points resting directly on the long axis "A" (or short axis
5 "B"). Rather, the elongated support members 24 and 30 could engage the bottom wall
16 a short distance away from the long axis "A" (or short axis "B"). However, as the
elongated support members 24 and 30 are positioned further away from the long axis
"A" (or short axis "B"), the bottom wall 16 and the upper frame member 22 will
cantilever a greater distance from the elongated support members 24 and 30 in one
10 direction, which could increase the likelihood of instability.

The bottom wall 16 depicted in Figure 2 is rectangularly shaped. Accordingly, a
long axis "A" and a short axis "B" are easily defined. However, it is contemplated that
the bottom wall 16 could be provided in nearly any shape, having any number of sides.
15 Accordingly, other known shapes such as an oval, an ellipse, and many polygons will
have an easily defined long axis "A" and short axis "B", whereas other shapes such as
circles and squares will have different vectored axis that are not as easily defined.
Accordingly, the "long axis" of uniform shapes such as circles and squares will be
considered to be any axis extending through the shaped base wall and the "short axis"
20 will simply be the axis extending through the shaped base wall that is perpendicular to,
but in the same plane as, the "long axis." While it is not imperative, it is contemplated
that the upper frame member 22 will be shaped and sized to approximate the bottom
frame member 18. The second end portions 26 and 32 of the elongated support
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1 members 24 and 30 will be positioned to engage the upper frame member 22 in a
manner similar to that described for the first end portions 28 and 34 and the bottom wall
16.

5 The enclosure means 14 will preferably be comprised of nearly any flexible
material and extend at least between the bottom wall 16 and the upper frame member
22 such that a generally enclosed chamber 36 is defined. A seam or doorway 38
should be formed along one side of the enclosure means 14 and secured in a
conventional fashion with a zipper, hook-and-loop fastener, or the like. Where a
translucent material is used to construct the enclosure means 14, it may be desirable to
10 provide a window 40, formed of a transparent material, in the enclosure means 14.
Bottom and/or top walls can be formed into the enclosure means 14 and provided with
openings having conventional fastening means. Desirably, the material selected for the
enclosure means 14 will be lightweight and durable. Where flexibility is not desired or is
15 unimportant, rigid wall members can be provided to form the enclosed chamber 36.
One or more portable dust collectors 72 can be coupled with the enclosure means 14 to
secure airborne debris moving into the chamber 36, as depicted in Figure 1

20 In a preferred embodiment, the frame assembly 12 will be height-adjustable to
permit use of the containment cart in different areas of various ceiling heights.
Accordingly, the elongated support members 24 and 30 should have a length-
adjustable design. In one embodiment, the first elongated support member 24 is
provided with a base portion 42 that telescopically receives an extension portion 44
therein. Similarly, the second elongated support member 30 is provided with a base
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1 portion 46 that telescopically receives an extension portion 48. As depicted in Figure 2,
the extension portions 44 and 48 can be selectively moved between extended and
retracted positions to selectively position the upper frame member 22 at a desired
height above the bottom wall 16. Due to the fact that only two support members are
5 used, a pair of gripping members 50 and 52 can be secured to the extension portions
44 and 48, respectively. It is contemplated that the gripping members 50 and 52 could
simply be provided as rigid handles, knobs, flexible straps, or the like. In this manner, a
user can simply grip one or both of the gripping members 50 and 52 and raise the
extension portions 44 and 48 and the upper frame member 22 to the desired height.
10 Where the extension portions 44 and 48 are made to telescope within the base portions
42 and 46, as depicted in Figure 2, channels 54 and 56 can be formed within the base
portions 42 and 46 to at least partially receive the gripping members 50 and 52 to allow
their passage along the length of the bottom portions 42 and 46. It is also
15 contemplated however that the extension portions 44 and 48 could be fashioned to
telescopically receive the base portions 42 and 46 therein, which would render the need
for forming the channels 54 and 56 moot. In order to secure the extension portions 44
and 48 in the selected positions, a plurality of openings 58 should be formed along the
lengths of the extension portions 44 and 48, which could be shaped and sized to
20 receive a retaining pin 60. However other embodiments of conventional securement
means between the telescoping sections are contemplated.

Desirably, the containment cart 10 will be easily stored and transported. To that
end, the flexible nature of the enclosure means 14 will permit the same to be neatly
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folded. The frame assembly 12 should be provided in a number of separate components that can easily be packed in a relatively flat and narrow space. For example, the bottom wall 16 could be provided in a single unit or as a separate bottom frame member 18 and the platform 20. The bottom frame member 18 and the platform 20 could be removably coupled to one another using conventional fastener means or simply coupled by placing the bottom frame member 18 atop the platform 20. The first and second elongated support members 24 and 30 could be removably coupled to the bottom wall 16 using a pair of support posts 62 and 64 which could be received by the first end portions 28 and 34 of the elongated support members 24 and 30. To secure this removable connection, it is contemplated that removable pins 66 or other conventional fastening means could be used. The second end portions 26 and 32 of the elongated support members 24 and 30 could be removably coupled to the upper frame member 22 using a similar post-and-receiver design or, as with the first end portions 28 and 34, the second end portions 26 and 32 can be removably coupled to the adjoining structure using a pair of bracket members 68 and 69, as depicted in Figure 3. Pin members similar to pins 66 or other conventional fastening means could be employed to secure the pairs of brackets 68 and 69 to the second end portions 26 and 32. Accordingly, the simple design of the frame assembly 12 permits the quick assembly and disassembly of the same by a single user. Moreover, the manner in which the frame assembly 12 disassembles allows it to be stored or transported in a small space.

1 To facilitate the ease with which the containment cart 10 is positioned, it is
contemplated that a plurality of casters 70 could be coupled to the bottom wall 16. In
keeping with the principle of being able to disassemble the containment cart 10 for
storage or transport, it is contemplated that the casters 70 could be provided with a
5 quick release securement system or other known conventional fasteners, such as bolts
and screws.

In the drawings and in the specification, there have been set forth preferred
embodiments of the invention and although specific items are employed, these are
used in a generic and descriptive sense only and not for purposes of limitation.
10 Changes in the form and proportion of parts, as well as a substitution of equivalents,
are contemplated as circumstances may suggest or render expedient without departing
from the spirit or scope of the invention as further defined in the following claims.

Thus it can be seen that the invention accomplishes at least all of its stated
15 objectives.